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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/729,943	12/06/2000	Hideo Yahagi	108066	6925

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Oliff & Berridge PLC
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Alexandria, VA 22320

EXAMINER

TRAN, HIEN THI

ART UNIT	PAPER NUMBER
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1764

DATE MAILED: 06/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/729,943

Applicant(s)

YAHAGI, HIDEO

Examiner

Hien Tran

Art Unit

1764

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12/21/04 & 3/18/05.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,4 and 6-11 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-2, 4, 6-10 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 3/18/05.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The amendment filed 12/21/04 is objected to under 35 U.S.C. 132(a) because it introduces new matter into the disclosure. 35 U.S.C. 132(a) states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows:

On page 1, line 24 to page 2, line 7 it is unclear as to where the phrase of “purging the NOx by disassociation” is disclosed in the original specification.

Applicant is required to cancel the new matter in the reply to this Office Action.

2. The disclosure is objected to because of the following informalities:

On page 1, line 24 to page 2, line 7 it is unclear as to what is intended by “purging the NOx by disassociation”.

Appropriate correction is required.

Claim Objections

3. Claim 8 is objected to because of the following informalities:

In claim 8, line 2 “au” should be changed to --an--.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Art Unit: 1764

5. Claims 1-2, 4, 6-10 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Specifically, in claim 1, lines 14-15 it is unclear as to where it is disclosed in the original specification that "... the gas flow resistance is set lower than said catalyst substance". See claim 2 likewise.

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 1-2, 4, 6-10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1, lines 14-15 it is unclear as to what is intended by "... gas flow resistance is set lower than said catalyst substance"; in line 16 it is unclear as to what is intended by "a face of said catalyst substance", apparently "substance" should be changed to --support--. See claim 2 likewise.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Art Unit: 1764

9. Claims 1-2, 7, 9-10 are rejected under 35 U.S.C. 102(b) as being anticipated by Foster (5,857,140).

With respect to claims 1, 2, Foster discloses an exhaust emission control system comprising:

an internal combustion engine;

an exhaust gas purifying catalyst provided in an exhaust passageway of said internal combustion engine; the catalyst including: a box body 12 formed with an exhaust gas inlet and an outlet; a catalyst support 18 incorporated into said box body; and a catalyst substance supported on said catalyst support 18; wherein a part of said catalyst support is a low resistance area or notch portion formed so that a gas flow resistance is lower than in other areas and disposed in such a position that a flow velocity of the exhaust gas flowing to said catalyst support is high (see, for example, col. 2, lines 38-45; col. 4, lines 8-61; col. 8, lines 20-30).

Foster further discloses that the notched portion is formed in an exhaust gas inflow sided end and in an exhaust gas outflow sided end.

With respect to the newly added limitation in claims 1-2, as discussed in the 112 rejection above, the newly added limitation introduces new matter. Therefore, the difference between applicants' claim area and that of the prior art cannot be identified by the specification of the instant application. As best understood, since a portion of the catalyst support in Foster is recessed from a face of the catalyst support, such area inherently forms a low resistance area with a low gas flow resistance and therefore meets the instant claims.

With respect to claim 7, Foster discloses provision of a plurality of notched portions (Fig. 18).

With respect to claims 9-10, Foster discloses that the notched portion includes a guide passageway inclined or conical shape (Figs. 8,17).

Instant claims 1-2, 7, 9-10 structurally read on the apparatus of Foster.

10. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by JP 07-232082.

With respect to claim 1, JP 07-232082 discloses an exhaust emission control system comprising:

an internal combustion engine;

an exhaust gas purifying catalyst provided in an exhaust passageway of said internal combustion engine; the catalyst including: a box body 30 formed with an exhaust gas inlet and an outlet; a catalyst support 10 incorporated into said box body; and a catalyst substance supported on said catalyst support 10; wherein a part of said catalyst support 10 is a low resistance area or notch portion 12 formed so that a gas flow resistance is lower than in other areas and disposed in such a position that a flow velocity of the exhaust gas flowing to said catalyst support is high (abstract).

With respect to the newly added limitation in claim 1, as discussed in the 112 rejection above, the newly added limitation introduces new matter. Therefore, the difference between applicants' claim area and that of the prior art cannot be identified by the specification of the instant application. As best understood, since a portion of the catalyst support in JP 07-232082 is recessed from a face of the catalyst support, such area inherently forms a low resistance area with a low gas flow resistance and therefore meets the instant claim.

Instant claim 1 structurally reads on the apparatus of JP 07-232082.

11. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by JP 1-119820.

Art Unit: 1764

With respect to claim 1, JP 1-119820 discloses an exhaust emission control system comprising:

an internal combustion engine;

an exhaust gas purifying catalyst provided in an exhaust passageway of said internal combustion engine; the catalyst including: a box body 8 formed with an exhaust gas inlet and an outlet; a catalyst support 1 incorporated into said box body; and a catalyst substance supported on said catalyst support 1; wherein a part of said catalyst support 1 is a low resistance area or notch portion 2 formed so that a gas flow resistance is lower than in other areas (abstract).

With respect to the newly added limitation in claim 1, as discussed in the 112 rejection above, the newly added limitation introduces new matter. Therefore, the difference between applicants' claim area and that of the prior art cannot be identified by the specification of the instant application. As best understood, since a portion of the catalyst support in JP 1-119820 is recessed from a face of the catalyst support, such area inherently forms a low resistance area with a low gas flow resistance and therefore meets the instant claim.

Instant claim 1 structurally reads on the apparatus of JP 1-119820.

12. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by JP 61-66610.

With respect to claim 1, JP 61-66610 discloses an exhaust emission control system comprising:

an internal combustion engine;

an exhaust gas purifying catalyst provided in an exhaust passageway of said internal combustion engine; the catalyst including: a box body 1a formed with an exhaust gas inlet and an outlet; a catalyst support 2 incorporated into said box body; and a catalyst substance supported

Art Unit: 1764

on said catalyst support 2; wherein a part of said catalyst support 2 is a low resistance area or notch portion 5 formed so that a gas flow resistance is lower than in other areas (abstract).

With respect to the newly added limitation in claim 1, as discussed in the 112 rejection above, the newly added limitation introduces new matter. Therefore, the difference between applicants' claim area and that of the prior art cannot be identified by the specification of the instant application. As best understood, since a portion of the catalyst support in JP 61-66610 is recessed from a face of the catalyst support, such area inherently forms a low resistance area with a low gas flow resistance and therefore meets the instant claim.

Instant claim 1 structurally reads on the apparatus of JP 61-66610.

13. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by JP 10-231722.

With respect to claim 1, JP 10-231722 discloses an exhaust emission control system comprising:

an internal combustion engine;

an exhaust gas purifying catalyst provided in an exhaust passageway of said internal combustion engine; the catalyst including: a box body 2e formed with an exhaust gas inlet and an outlet; a catalyst support 3 incorporated into said box body; and a catalyst substance supported on said catalyst support 3; wherein a part of said catalyst support 3 is a low resistance area or notch portion 3a formed so that a gas flow resistance is lower than in other areas.

With respect to the newly added limitation in claim 1, as discussed in the 112 rejection above, the newly added limitation introduces new matter. Therefore, the difference between applicants' claim area and that of the prior art cannot be identified by the specification of the instant application. As best understood, since a portion of the catalyst support in JP 10-231722 is

Art Unit: 1764

recessed from a face of the catalyst support, such area inherently forms a low resistance area with a low gas flow resistance and therefore meets the instant claim.

Instant claim 1 structurally reads on the apparatus of JP 10-231722.

Claim Rejections - 35 USC § 103

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

15. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

16. The art area applicable to the instant invention is that of catalytic converter.

One of ordinary skill in this art is considered to have at least a B.S. degree, with additional education in the field and at least 5 years practical experience working in the art; is aware of the state of the art as shown by the references of record, to include those cited by applicants and the examiner (*ESSO Research & Engineering V Kahn & Co*, 183 USPQ 582 1974) and who is presumed to know something about the art apart from what references alone teach (*In re Bode*, 193 USPQ 12, (16) CCPA 1977); and who is motivated by economics to depart from the prior art to reduce costs consistent with the desired product characteristics. *In re*

Art Unit: 1764

Clinton 188 USPQ 365, 367 (CCPA 1976) and *In re Thompson* 192 USPQ 275, 277 (CCPA 1976).

17. Claims 4, 6, and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Foster (5,857,140).

With respect to claims 4, 6, selecting an appropriate amount of catalyst loading for each portion of the substrate is within the purview of one having ordinary skill in the art during routine experimentation and optimization of the system, absence showing any unexpected results thereof.

With respect to claim 8, since the shape of the end face of the catalyst substrate (shape of the notched portion) is not considered to confer patentability to the claim. It would have been an obvious matter of design choice to select an appropriate shape for the end face of the catalyst substrate/shape of the notched portion, since such a modification would have involved a mere change in the shape of a component. A change in shape is generally recognized as being within the level of ordinary skill in the art, absence showing any unexpected results. *In re Dailey*, 357 F.2d 669, 149 USPQ 47 (CCPA 1966).

18. Claims 2, 4, 6-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over either JP 07-232082, JP 1-119820, JP 61-66610 or JP 10-231722 in view of Foster (5,857,140).

The same comments regarding to Foster apply.

It would have been obvious to one having ordinary skill in the art to select notched portions (shape, number, location, etc.) as taught by Foster in the apparatus of JP 07-232082, JP 1-119820, JP 61-66610 or JP 10-231722, since such a modification would have involved a mere change in the shape of a component or rearrange the notched portion. A change in shape is

Art Unit: 1764

generally recognized as being within the level of ordinary skill in the art, absence showing any unexpected results. *In re Dailey*, 357 F.2d 669, 149 USPQ 47 (CCPA 1966). Note that it has been held that rearranging parts of an invention involves only routine skill in the art. *In re Japikse*, 86 USPQ 70.

Response to Arguments

19. Applicant's arguments filed 12/21/04 have been fully considered but they are not persuasive.

Applicant argues Foster lacks a catalyst support including a low resistance region that enables exhaust gas to pass through more readily than through the catalyst substance. Such contention is not persuasive as Foster teaches a catalyst support, e.g. 18, having inlet face 20 and outlet face 22, the faces being indented or recessed defining a low resistance area, e.g. the distance from the inlet face to the outlet face in said indented area is shortened. Therefore the gas flow resistance in said area is inherently decreased.

Applicant argues that the JP '082 reference (Houdaira) lacks any configuration to the notched portion that is recessed from the catalyst substance nor a low resistance area as set forth in instant claims. Such contention is not persuasive as Houdaira discloses a catalyst support 10 having recess 12. The distance from the inlet face to the outlet face in said recess area is shortened and therefore the gas flow resistance in said area is inherently decreased.

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge

Art Unit: 1764

generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992).

In this case, the JP reference teaches all of the structural elements set forth in the instant claims, but is silent as to whether the notch portions may be disposed at the downstream side of the carrier. Foster discloses the conventionality of providing the notch portions at the upstream and downstream side thereof. It would have been obvious to one having ordinary skill in the art to select appropriate notched portions (shape, number, location, etc.) as taught by Foster in the apparatus of JP 07-232082, since such a modification would have involved a mere change in the shape of a component or rearrange the notched portions. A change in shape is generally recognized as being within the level of ordinary skill in the art, absence showing any unexpected results. *In re Dailey*, 357 F.2d 669, 149 USPQ 47 (CCPA 1966). Note that it has been held that rearranging parts of an invention involves only routine skill in the art. *In re Japikse*, 86 USPQ 70.

Conclusion

20. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Gary, Abe et al, and Sigling are cited for showing state of the art.

21. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hien Tran whose telephone number is (571) 272-1454. The examiner can normally be reached on Tuesday-Friday from 7:30AM-6:00PM.

Art Unit: 1764

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on (571) 272-1444. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Hien Tran

Hien Tran
Primary Examiner
Art Unit 1764

HT
June 15, 2005